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(56) Documents Cited

DE 000388821 A

DE 000335438 A

FE 002656597 A1

FR 002771607 A2

FR 002766679 A1

FR 000962780 A

US 6029321 A

(58) Field of Search

UK CL (Edition T ) A4G

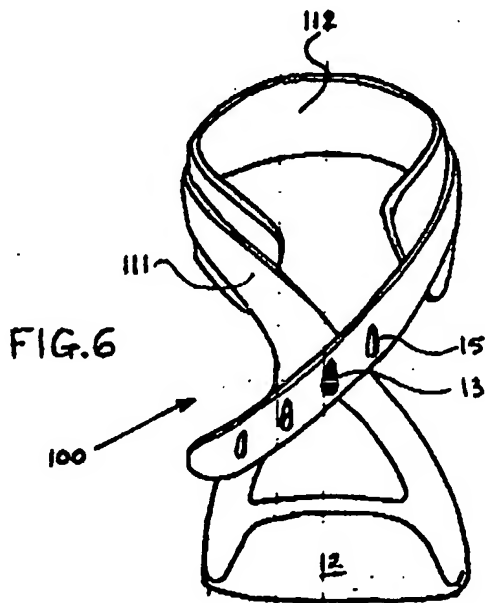
INT CL<sup>7</sup> A45F 3/14 5/10

Other: Online: WPI, EPODOC, JAPIO

(54) Abstract Title

A Carrying strap

(57) A carrying aid comprises a hook 12 at one end of a strap, the strap having a fastener 13 at a mid-portion thereof which in use locates in the base of the hand, the distal end 14 of the strap spaced from the hook being engageable with the fastener to form an adjustable length strap which passes around the back of a user's wrist. That portion of the strap between the fastener and the distal end of the strap can be broadened to increase the load transmitting area to the back of a user's wrist and the inner surface of the strap adjacent to the wrist may be padded 112. The fastener can comprise a stud on the mid-portion of the strap engageable with a plurality spaced holes 15 in the distal portion of the strap. The hook can comprise an elongate u-shaped channel having one side formed integrally with the strap and may be formed by the end of the strap being turned back of itself. The edges of the hook may be chamfered. The carrying aid may be formed as a single moulding. In use, the carrying aid reduces the discomfort associated with carrying heavily-laden bags held by flexible handles such as shopping bags.



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FIG. 5

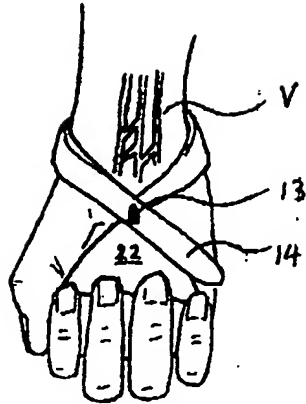


FIG. 1

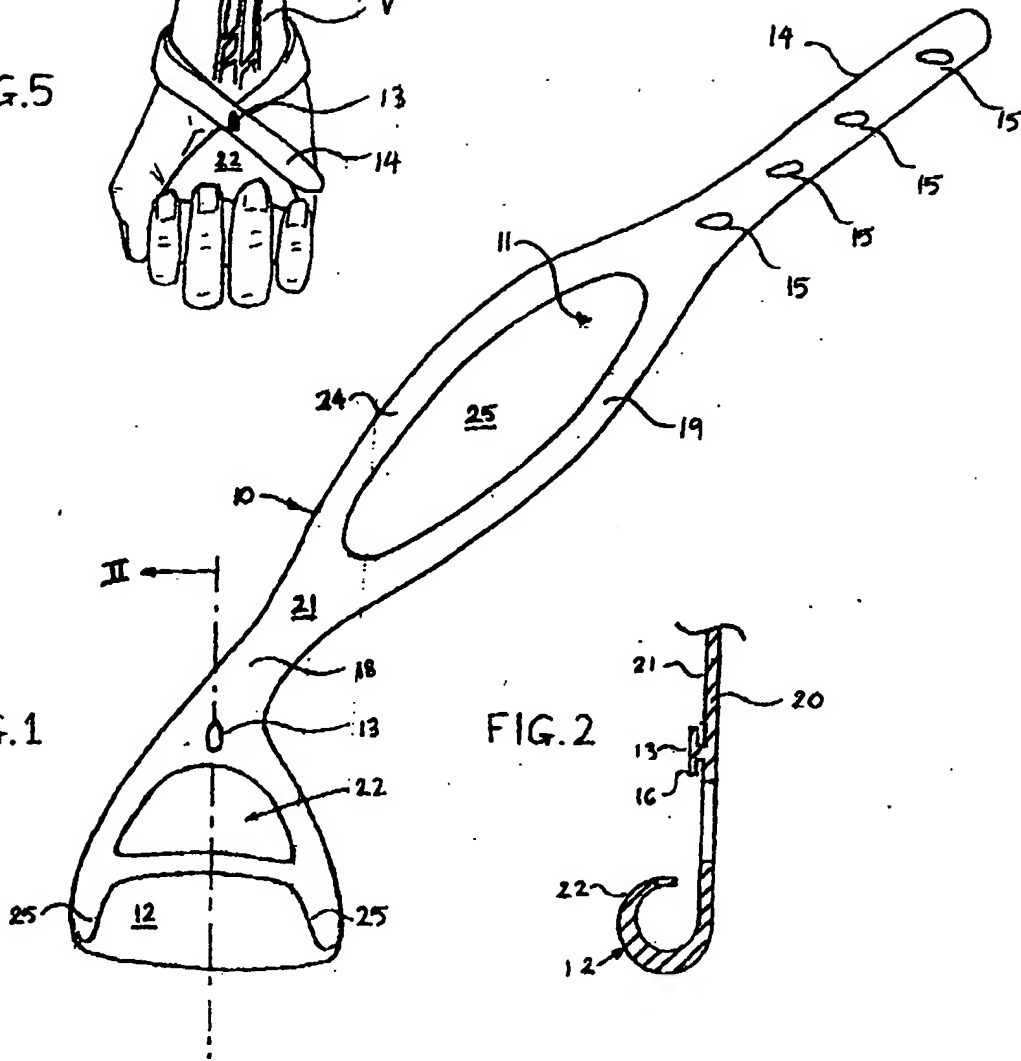


FIG. 2

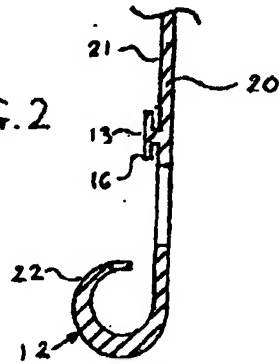


FIG.3

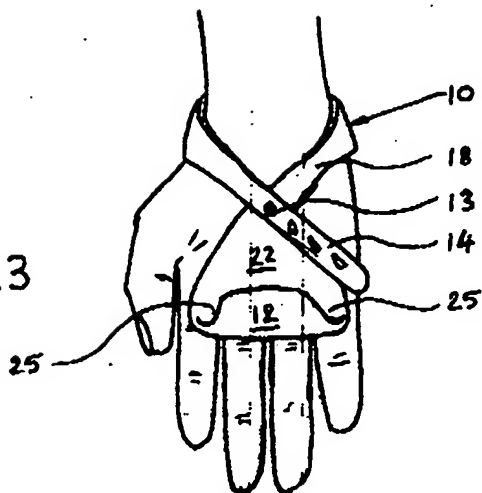
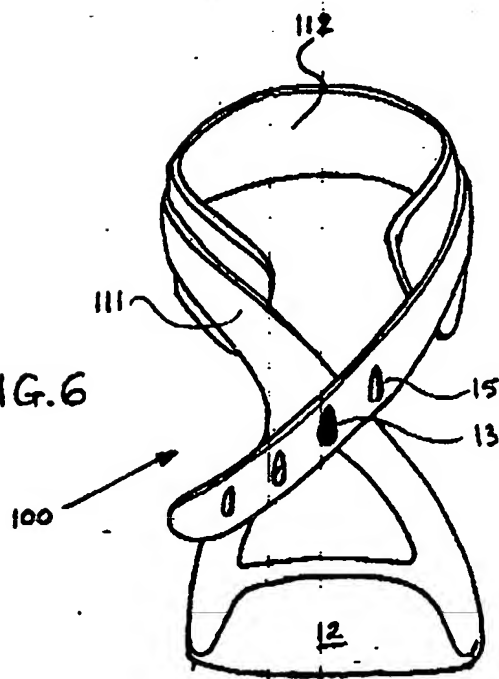


FIG.4



FIG.6



A Carrying AidField

This invention relates to carryings aids in particularly  
5 but not necessarily, a carrying aid which is utilised for  
carrying of bags.

Background of the Invention

The carrying of loaded plastic carrier bags can give rise  
10 to difficulties due to the static loading exerted in the  
hand of the person carrying heavily laden bags by the  
flexible bag handles. A known method of preventing the  
handles from cutting into the hand and making the carrying  
operation more comfortable is shown in PCT/US91/01234, and  
15 in PCT/NZ93/00124, is for the bag handles to locate in a  
relatively rigid U shaped section holder. However, such  
devices do not avoid the static loading on the hand which  
causes the muscles to be held in tension for long periods  
of time which can cause pain and discomfort. This problem  
20 may be due to a build up of lactic acid in the hand muscles  
which is increased by a lack of circulation due to the hand  
being held in tension in a static position, and a reduced  
flow of de-oxygenated blood from the fingers due to the  
squeezing and constriction of the returning veins caused by  
25 static load. This complaint is more common amongst persons  
having weak circulation and particularly amongst the  
elderly who are one of the largest group of pedestrian

shoppers.

Another known carrying aid is shown in FR-A-2766679 in which a U shaped section support is mounted on wrist strap which is placed around the wrist. This allows the hand to be relieved of the carrying load occasionally and may allow the hand to flex to increase circulation. However such a device still constricts the wrist and blood flow through the main vein.

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#### Object of the Present Invention

The present invention provides a carrying aid which reduces the discomfort associated with carrying heavily laden bags held by flexible handles.

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#### Statements of Invention

According to the present invention there is provided a carrying aid comprising an adjustable strap having a hook at one end thereof which in use is held in the hand, a fastening device at a mid-portion of the strap and which in use locates in the base of the hand, and a distal end portion away from the hook engagable with the fastening device to form an adjustable length strap which in use passes around the back of the wrist.

25

The above carrying aid distributes the load about the base of the hand and back of the wrist allowing for movement of the hand during carrying, and unimpeded blood flow between

the hand and wrist thereby reducing the build up of lactic acid in the muscles of the hand. This reduces discomfort and allows static loads to be carried further than they otherwise might have been.

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The portion of strap between the fastening device and the distal end portion may be broadened to increase the load transmitting area on the back of the wrist. The inner surface in use adjacent the wrist may be padded for  
10 comfort, preferably by a layer of foam which could be moulded integrally with the strap.

The fastening device may be any suitable device such as a buckle, a stud on mid portion of the strap engagable in a  
15 plurality of spaced holes in said distal portion, or may comprise a hook member of a hook/loop (velcro<sup>(RTM)</sup>) attachment system the loop member being on the distal end portion of the strap.

20 The hook comprises an elongate U shaped channel and may have one side formed integrally with the strap preferably by the end portion of the strap being turned back on itself to form the other side of the channel, the ends of the other side of the channel being chamfered.

25

The strap may be formed as a single moulding.

Preferably the strap is usable on both the left or right

hand of a wearer.

#### Description of the drawings

The invention will be described by way of example and with  
5 reference to the accompanying drawings in which:

- Fig. 1 is an isometric view of a carrying aid  
according to the present invention,  
Fig. 2 is a section on the line II-II of Fig. 1,  
Fig. 3 is a view of the aid as fitted to the  
10 wearer,  
Fig. 4 is a view of the aid in use,  
Fig. 5 is a view of a hand clenched around the aid  
showing the principle veins, and  
Fig. 6 is an isometric view of a second carrying  
15 aid also according to the present invention.

#### Description of the Invention

With reference to Figs. 1 to 3, there is shown a carrying  
aid 10 which comprises an adjustable strap 11 having a hook  
20 member 12 at one end, a fastening device 13 at a mid-  
portion of the strap, and a distal end portion 14. The  
strap 11 in use has an inner side 20 which in use lies  
adjacent the skin of the wearer and an upper side 21 which  
faces away from the skin. The fastening device 13 is in the  
25 form of a stud on the upper side 21 having a detent 16  
thereon and distal end portion 14 has a plurality of spaced  
holes 15 therein, each of which can be forced over the  
detent to engage the stud 13. The spaced apart holes form

a strap the length of which is adjustable in discrete steps. Other suitable fastening devices may be used if desired.

5 The hook member 12 comprises a "U" shaped section elongate channel formed from a portion of said one end being turned back on itself preferably towards the upper side 21 of the strap. The hook member 12 is preferably integral with the strap 11 which forms one side of the "U" shaped channel and  
10 the strap narrows in width towards the stud 13 forming a triangular portion 22 which fits into the palm of the hand (see Fig. 3) with the stud 13 at the apex. The outer or upper side 23 of the hook member 12 has chamfered end portions 25 which in use facilitate the placement of  
15 flexible bag handles onto the hook.

A narrow mid-portion 18 of the strap 11, extends away from the apex of the triangular portion 22 at a bias angle to the "U" shaped channel so that in use it passes from the  
20 palm at a bias to the back of the wrist of the wearer. A suitable bias angle may be between 40-60 degrees, and preferably about 45-50 degrees. The strap then broadens into a wider mid portion 19 which in use passes behind the wrist. In use, the mid-portion 19 transmits the loads on  
25 the hook member 12 to the back of the wrist and may comprise a continuous broad portion of the strap or alternatively, as shown, may comprise marginal continuous portions 24 with a hollow centre 25. The hollow centre 25



may be filled with a padded section for comfort. The padded section could carry some decoration, information, advertising, etc on its upper surface.

- 5 The broad mid section then extends into the narrower distal end portion 14 of the strap which in use extends at a bias across the base of the hand to fasten with the stud 13.

As is shown in Fig. 3, the carrying aid is worn with the  
10 hook member 12 in the palm of the hand and the strap passing around the back of the wrist to fasten on the stud 13. As shown in Fig. 4 the handles of a plastic type carrier bag 30 are located in the hook member 12 and the hand then clenched in the normal manner.

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The bag load is transmitted to the back of the wrist and the base of the hand. The device allows the hand to be free to flex to relieve muscles and improve circulation. As can be seen in Fig. 5 the bias angle of the crossing straps  
20 avoids constricting the veins V passing from the hand to the wrist.

The hook member 12, fastening device 13 and strap 11 may be moulded in a suitable plastics material for example a  
25 polyolefin such as polypropylene, nylon etc., as a single component. Any padding on the inner surface may be added as a separate component or alternatively moulded onto the strap eg. a polypropylene foam padding could be moulded in situ

against a previously formed strap in the same mould.

Fig 6. shows a modified carrying aid 100 in which the strap 111 is biased on the opposite angle to that in Fig. 1, and is a continuously narrow strap having a broad central padded portion 112 added to the inner side of the narrow strap.

The devices 10 or 100 may be used with either hand.

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Claims

1. A carrying aid comprising an adjustable strap having a hook at one end thereof which in use is held in the hand, a fastening device at a mid portion of the strap and which in use locates in the base of the hand, and a distal end portion away from the hook engagable with the fastening device to form an adjustable length strap which in use passes around the back of the wrist.
2. A carrying aid as claimed in Claim 1 wherein the portion of strap between the fastening device and the distal end portion may be broadened to increase the load transmitting area on the back of the wrist.
3. A carrying device as claimed in Claim 1 or Claim 2 wherein the inner surface of the strap in use adjacent the wrist is padded.
4. A carrying device as claimed in Claim 3 wherein the strap has a foam layer formed integrally with its inner surface.
5. A carrying device as claimed in any one of Claims 1 to 4 wherein the fastening device comprises a stud on mid portion of the strap engagable in a plurality of spaced holes in said distal portion.

6. A carrying device as claimed in any one of Claims 1 to 5, wherein the hook comprises an elongate U shaped channel having one side formed integrally with the strap.
- 5 7. A carrying device as claimed in Claim 6 wherein the hook is formed by the end portion of the strap being turned back on itself.
8. A carrying device as claimed in Claim 6 or Claim 7  
10 wherein the other side of the hook is chamfered.
9. A carrying device as claimed in any one of Claims 6 to 8 wherein the strap may be formed as a single moulding.
- 15 10. A strap as claimed in any one of Claims 1 to 9 which is usable on both the left or right hand of a wearer.



INVESTOR IN PEOPLE

Application No: GB 0200271.5  
Claims searched: 1-10

Examiner: Mike Leaning  
Date of search: 10 May 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.T): A4G

Int CI (Ed.7): A45F 3/14, 5/10

Other: Online: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	US 6029321 (FISHER) Does not have an integral hook, but note the strap arrangement in the figures.	X: 1,5,6,8 &10 Y: 3
X,Y	DE 388821 A (STEINER) See the figures, noting the press stud and holes 'g' allowing the strap to be adjusted. No English abstract is available.	
A	DE 335438 A (MEINERT) See the figures. No English abstract is available.	
A	FR 2771607 A3 (CODINA) See especially figures 3-6. Shopping bag carrier which does not use a hook.	
Y	FR 2766679 A1 (SMETRYNS) See the figures and WPI Abstract Accession No. 99/145227-13. Note the padded layer of baize ( <i>feutrine</i> ) 6 on the inner surface of the strap.	3
A	FR 2656597 A1 (ESTEBAN et al.) See the figures.	
A	FR 962780 A (BROCHARD) See the figures. No English abstract is available.	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.